

## USE OF SIMPLIFIED SCENARIOS FOR CRM TRAINING

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CAPT. WEATHERLY: It's a pleasure to be here today. I was especially pleased to see the aviation university system represented here today, because it is to them we must all look for the solutions to the long-term problems for cockpit resource management.

We were asked a year ago to do a study on the use of simplified scenarios for cockpit resource management training. We did so, and we found out some very interesting things during that study. We started an eight-month test program using a Frasca 102G generic type training device.

The program started in November 1982 and progressed to June 1983. In that time we processed 86 pilots through the program. It required that three coordinators be trained to administer the scenarios.

The coordinators' training consisted of a personal study of the NASA publication, "Guidelines for LOFT". Since it was a generic trainer, we did not want to use a true LOFT scenario. Instead, what we wanted to use was line oriented simulation to increase the realism to the pilots.

After studying the NASA publication, we had several group sessions among the coordinators to talk about what we wanted to accomplish during the study and how we would go about accomplishing those objectives.

Also, there were several practice scenarios conducted with volunteer crews. Once the coordinators' training was completed, we progressed into the actual training programs. We used recurrent flight training for captains to start the program. We asked that the first officers who happened to be flying with the captain that month, also attend the training program, which they did.

The first thing we did was explain the purpose of the testing program and what the line-oriented simulation was all about. What we tried to do was appeal to the competitive spirit of the pilots. We tried to put it in a team concept, appealing to their ability to compete against the airplane and the air traffic control system in weather. And in doing so the pilots were helping us pull the line-oriented

simulation off in that they really tried their best to put themselves in the situation.

The next thing we did was set down the rules for the conduct of the scenarios. We did this by writing them down. For instance, since it's a nonvisual simulator, they had no way of knowing whether they could land out of the approach or not. In that instance, if the pilots got to the MDH or DH, and the coordinator determined that they could land out of the approach, he would say they were visual, and they would land. If not, they would go ahead and make a missed approach.

In addition to that, we gave each crew a packet of information. The trip information consisted of a trip schedule with two flights that they were to complete, area and terminal forecasts, winds aloft forecasts, hourly sequence reports and a section of notams. We used actual weather from days of poor weather that we had in the Houston area. We had them fly routes that they were very familiar with to increase the realism.

In addition, the coordinators also received a trip information packet. In their packet was the purpose of the scenario, weather data, the clearances that were to be given to the crew and the coordinators.

The types of malfunctions that could be given in this generic type device broke down into communications and navigation anomalies, weather anomalies and air traffic control anomalies. We thought that to go into malfunctions that were particular to the type of aircraft or simulator they were flying was going above and beyond what we could realistically do.

The type of training goals that we tried to obtain with the use of these scenarios was to give the crew practical experience in changes to standard clearances, and in operative communications equipment, which we had the most fun with; having a crew take off and lose all communications ability shortly after takeoff. Specifically, as anomalies we used: inoperative navigation equipment, some subtle incapacitation exercises, marginal weather conditions, changing weather conditions and flight delays caused by ATC.

About a month after we started the scenarios, we saw several things happening that we couldn't explain at the time, but through additional experience with the program we were able to formulate some ideas.

The first problem we ran into is that the crews had problems talking about the management aspects of the scenario. There was no common language between the crews to

talk about these things. That led us into doing a survey of all the crews to determine which crew members actually had any type of management training before they became professional pilots. Seventy-eight percent of the pilots that have worked for Metro Airlines have never in their college or professional careers had any experience in management.

This led us to a very important conclusion. And that is, cockpit resource management is an advanced management tool. The pilots of the regionals come from quite diversified backgrounds. A large number come from the military, which made up for most of the 22 percent that had had some management training. Because of their military background, they had training in officer candidate school. The rest of the pilots came up through the civilian ranks, and although a majority of them do have degrees, most of them have not been through any type of management program.

The first conclusion we drew from this information was that in order for the scenarios to be conducted properly there would have to be some type of a formalized ground training program to indoctrinate the pilots into the principles of management, not going directly into cockpit resource management but going into the basics of management, of supervisory skills for example.

This led us to another thought, and that was that most of the first officers that are hired by the major airlines, or second officers as the case may be, come from the regional airlines, corporate flight departments or the military. In any case, they have had previous experience in a crew environment. Our pilots, and as an industry, do not have that benefit. They have never been exposed to the crew concept. For the operators who have just gone to a two pilot operation from a single pilot operation, you know exactly what I am talking about. There is a lot of friction in the cockpits, because of the way in which training is done in the United States, pilots are trained to be a pilot in command not a second pilot.

I think one thing we all might think about in the next couple of days is possibly having some type of training program, formalized training program, for first officers, teaching a first or second officer how to be a subordinate crew member. Throughout his previous training, he has been trained only as a pilot in command.

I think as an industry we can look to the aviation oriented universities in the future to provide this type of training prior to the pilots becoming licensed.

Anyway, the scenarios consisted of two, one-hour

flights. This was done without changing what they actually do on the line. This is due to the short flight segments we conduct. After each one of those scenarios, the crews went into a debriefing. The debriefings were the most important component of the scenarios. In fact, they often lasted over two hours.

The coordinator's purpose was to lead the discussion. He was not to draw any conclusions and tell the pilots "well, you did this right and you did this wrong;" indeed when you get into these areas there is no one right way of doing things. The idea was only to provoke thought among the crew members about different ways of accomplishing the same task.

For instance, if they had problems with the radio communications problem, the coordinator might ask the captain, "What other ways could you have handled the situation;" this started the conversation. And then he would ask the first officer the same types of questions. This got the crew members thinking about alternative ways to accomplish the same goals.

We thought that this training would carry over to line operations. The way we followed up on it was to train the check airmen that were regularly flying in line operations to check. For example, they were to observe the crews and see if the coordination training that we gave them carried over.

The conclusion we came to was that the training did not carry over beyond an appreciable amount of time. This type of training indeed takes a long period of time to effect any change. You can't put a crew member through a two or three day training session, bring him back once a year and expect that to suffice. It won't. The crew members must actively, in day-to-day operations, be involved in this type of self evaluation.

Which brings us to the first point again. If we start with the first officers, training them in the basic principles of management and then as their careers develop, nurture these skills, by the time they get to a position of upgrading to captain they will have much more experience in this area, rather than waiting until it's time for them to upgrade and throwing management at them all at one time.

I think the program, for any of the smaller operators that want to try the same type of program, is well worth the effort. It will enable the pilots to have a better understanding of what goes on within operations, what actually goes into flight standards manuals, what goes into operations manuals. And I think you will find it well worth

the time you put into it. Thank you.

MR. COLLIE: Thank you, Dan. Anyone have any questions?

CAPT. CARROLL: I just need a little clarification from what you had to say. You made, as I understood it, a distinction between line oriented simulation versus LOFT. Would you expand upon how you distinguish between those two?

CAPT. WEATHERLY: Line oriented flight training, we felt, should be conducted in a simulator or in a high level training device that is a replica of the airplane the crews are flying. We have two different types of airplanes that we use the scenarios to train the crews on, and that is the Shorts' 330 and the DeHaviland DHC6. Rather than infringe on the major's lead in LOFT, we felt that with this lower level generic training device we ought to call it line oriented simulation rather than line oriented flight training.

CAPT. CARROLL: Thank you for your support. In what you are doing, I would say that the way you are approaching it is just a rose by another name. I think it is doing exactly what it is you are after and that we are after in the LOFT concept.

CAPT. WEATHERLY: Absolutely. I agree with you.

MR. COLLIE: Any additional questions?

CAPT. BREWER: Chuck Brewer from Summit.

How many manhours do you think it took to develop such a program?

CAPT. WEATHERLY: Just approximating, possibly 160. Most of the time for these scenarios is spent in developing them. If you don't sit down and work out all the bugs beforehand, then the objective of the training is never obtained, because there are so many problems with the scenario.

What we found is once the crews were involved in solving a problem, they'd forget they were in a generic device. We had guys literally sweating in there, and I think that that was mostly due to the temperature in the room, but they did get very involved in the program. The crews said it really opened their eyes to something they had never thought about. And that was the purpose of this test program.

MR. COLLIE: Thank you, Dan.

Air Midwest operates 22 Swearingen airplanes out of Wichita, Kansas. They agreed to look at the communications

factor of CRM for their presentation. Captain Martin Shearer is here today to give us the benefit of what's happened with Air Midwest, Martin.